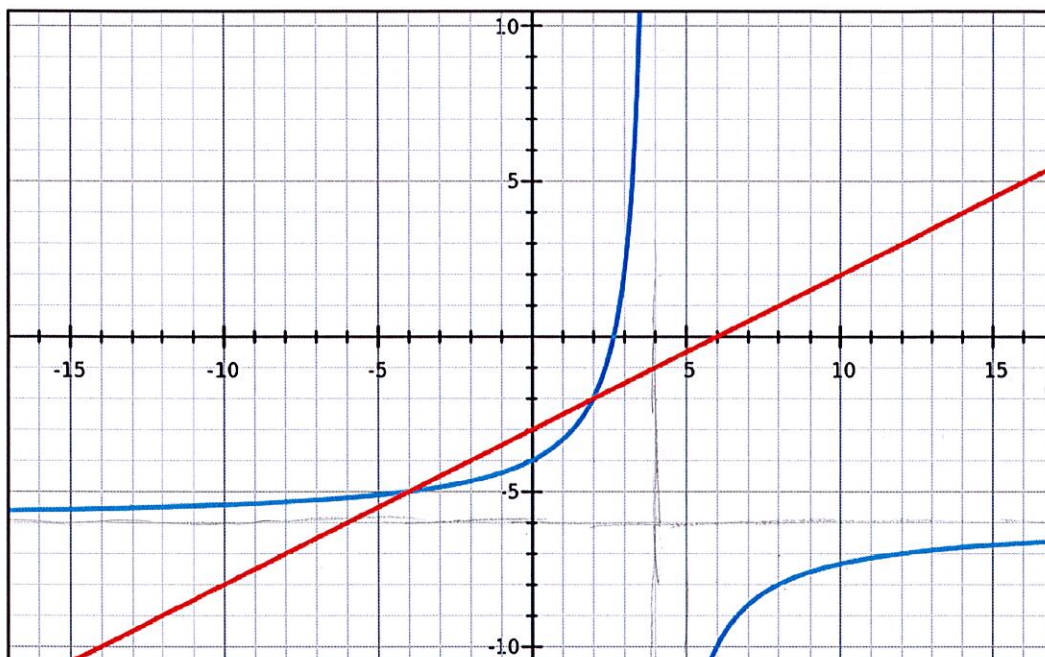


Name: KEY

Date: \_\_\_\_\_

**Directions:** Write the equation of each function. Then find the **exact** points of intersection.

$$\begin{aligned} f(x) &= \frac{-8}{x-4} - 6 \\ g(x) &= \frac{1}{2}x - 3 \end{aligned}$$

$$\frac{-8}{x-4} - 6 = \frac{1}{2}x - 3$$

$$(x-4)\left(\frac{-8}{x-4} = \frac{1}{2}x - 3\right)$$

$$-8 = \frac{1}{2}x^2 + x - 12$$

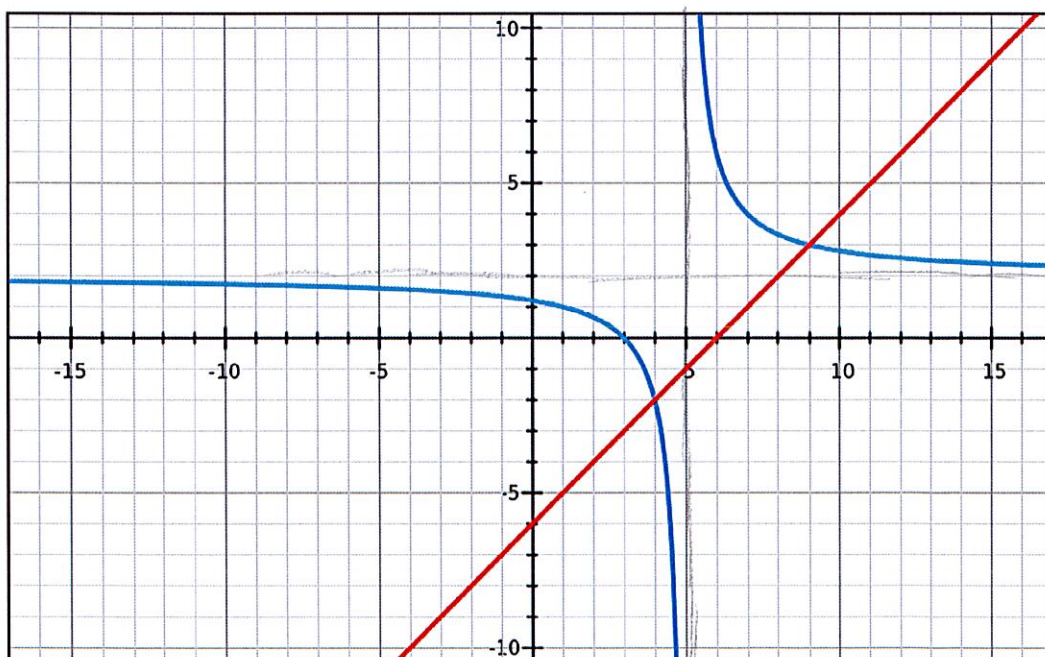
$$0 = \frac{1}{2}x^2 + x - 4$$

$$0 = x^2 + 2x - 8$$

$$0 = (x+4)(x-2)$$

$$x = -4, 2$$

$$\text{points } (-4, -5) \text{ and } (2, -2)$$



$$\begin{aligned} f(x) &= \frac{4}{x-5} + 2 \\ g(x) &= x - 6 \end{aligned}$$

$$\frac{4}{x-5} + 2 = x - 6$$

$$\frac{4}{x-5} = x - 8$$

$$4 = x^2 - 13x + 40$$

$$0 = x^2 - 13x + 36$$

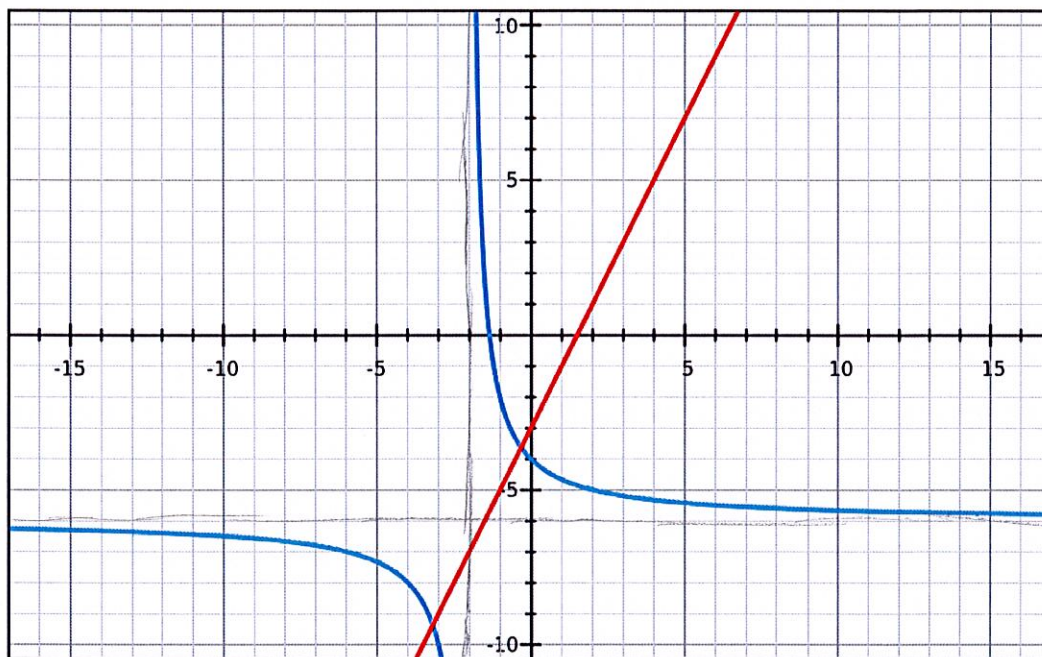
$$0 = (x-4)(x-9)$$

$$x = 4, 9$$

$$\text{points } (4, -2) \text{ and } (9, 3)$$

Algebra 2H

Rational Functions Day 22 – Systems of Rational & Linear Equations



$$f(x) = \frac{4}{x+2} - 6$$

$$g(x) = 2x - 3$$

$$\frac{4}{x+2} - 6 = 2x - 3$$

$$\frac{4}{x+2} = 2x + 3$$

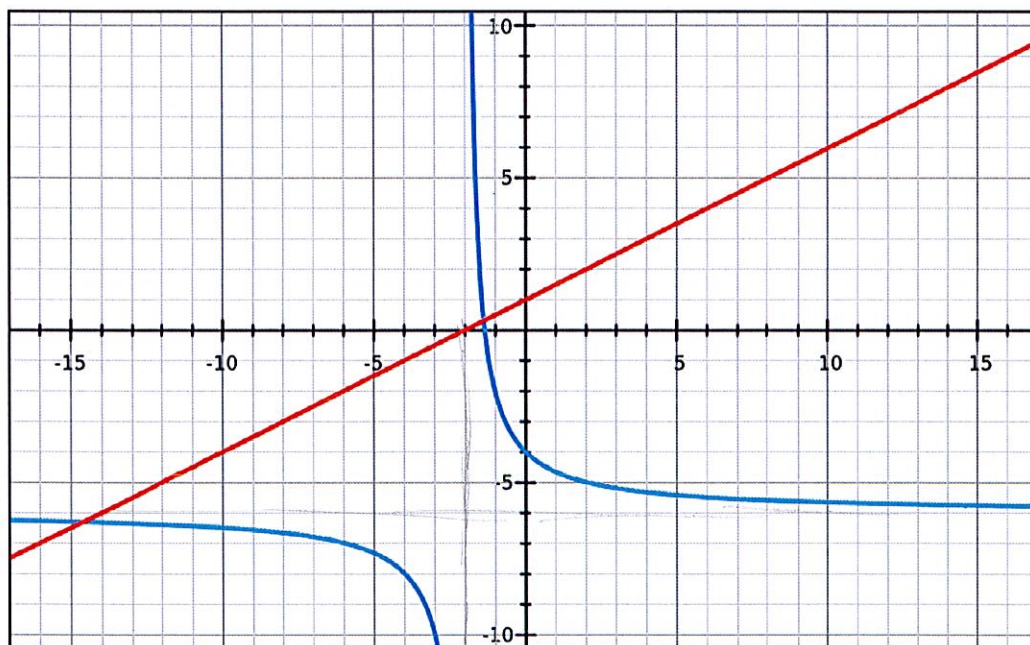
$$4 = 2x^2 + 7x + 6$$

$$0 = 2x^2 + 7x + 2$$

$$x = \frac{-7 \pm \sqrt{49 - 4(2)(2)}}{4}$$

$$x = \frac{-7 \pm \sqrt{33}}{4}$$

$$\text{points } (-0.314, -3.628) \text{ and } (-3.186, -9.372)$$



$$f(x) = \frac{4}{x+2} - 6$$

$$g(x) = \frac{1}{2}x + 1$$

$$\frac{4}{x+2} - 6 = \frac{1}{2}x + 1$$

$$\frac{4}{x+2} = \frac{1}{2}x + 7$$

$$4 = \frac{1}{2}x^2 + 8x + 14$$

$$8 = x^2 + 16x + 28$$

$$-20 = x^2 + 16x$$

$$-20 + 64 = (x + 8)^2$$

$$44 = (x + 8)^2$$

$$\sqrt{44} = x + 8$$

$$\pm 2\sqrt{11} = x + 8$$

$$-8 \pm 2\sqrt{11} = x$$

$$\text{points } (-1.367, 0.317) \text{ and } (-14.633, -6.317)$$